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A STROLL BY THE SEA-SIDE.

BY EDWARD S. MORSE.

THE sea-side naturalist has certain advantages not possessed by his inland *confrère*, in the greater variety of life, and in the profusion of material which is daily exposed to him by the tides, and in the debris strewn in windrows along the shores by the heavy storms that sweep along the coast. While he may turn inland and in an hour's walk reach the representatives of animals which are found throughout the continent, the inland naturalist must visit the sea-side to see the living representatives of certain classes that are almost, or quite exclusively, marine.

Even a whole branch of animals, the Radiates, comprising such animals as the sea-anemones, jelly-fishes, star-fishes, and sea-urchins, has only one feeble microscopic representative in fresh water. The class of bivalve mollusca, with its unique sea forms of razor-clam, mussel, scallop, and hundreds of others, is represented in our fresh-water ponds and streams, by the mussels and a few minute forms, though it may be said with truth that the mussels of the Western waters ape in their variety of forms, many of the marine species. The entire class of Cephalopods, comprising the squid, cuttle-fish, and nautilus, is exclusively marine. The extensive class of Crustacea, with the lobster, crab, and shrimp as common examples, are represented in fresh water by the crawfish and a few smaller species. As a slight compensation, however, the inland student has oftentimes stored up in the rocks beneath his feet imperishable mementos of ancient sea-life, and he may there find gigantic ammonites, huge masses of coral, and thousands of other forms remotely similar to existing species in the ocean.

The godsend to an inland collector of a drained canal, or the exposed bottom of a pond after a drought, is daily repeated on the sea-side by the recedence of the tide, leaving hundreds of miniature aquaria in the crevices of the rocks, freshly stocked and daily replenished by nature, while the surrounding conditions, in the form of clean rocks dried by the sun, the absence of foliage to obstruct the light, offer the collector every opportunity to study the marvels of sea-life in their native haunts. Thus, while the sea-side offers unrivalled attractions to the tourist, it opens to the naturalist a field for study as vast as the sea itself.

Let us take advantage of a day at the sea-side, by a stroll along the shore between high and low-water mark, and jot down a few observations on the more common forms that are sure to meet the eye at every turn. And first of all we notice the rocks whitened as if by a painter's brush. All the exposed ledges, as far as the eye can reach, reflect the rays of the sun like snow-drifts. Can it be possible that this limy covering is made up of little sentient animals, whose soft bodies moisten the rocks, as we crush them by hundreds at every step?

We examine them, and yet no signs of life are seen; closely they remain locked up in their shelly casements. Yet in a neighboring pool of water we see these tiny animals with their doors thrown wide open, and a little crown of feelers flung out in constant action. And this motion is incessantly repeated, making a movement like the grasp of a human hand in space. These animals are known as Barnacles (Plate 6, figs. 1, 2). They not only clothe the rocks in summer, but form an almost impenetrable coat of mail around the piles of our piers, and by their rapid growth foul the ship's bottom at sea.

A closer inspection of this animal with a lens reveals the fact, that the appendages thrown out so actively are lined with little hairs; that the mouth is situated within the shell at the base of these appendages, and that the clutching motion is made to secure the minute particles of food that float in the water, which are swept toward the mouth and secured by it. One hardly wearies of watching the rhythmical and graceful movements of these never-tiring appendages, and the curious movements of the mouth-parts, as some invisible tit-bit is secured by its perpetual industry.

For a long time these animals were included in the same branch with the clams and snails, until it was discovered, by observing the young stages of the barnacles, that they were more closely allied to the crabs and shrimps, that is, articulated animals, and that they had no relationship with the shell-fish so called. It was found that the young barnacle (Plate 6, fig. 3) was furnished with jointed appendages, having also organs of sight, and that in this condition swam freely in every direction; that finally securing a hold upon some body, it became cemented head downward, lost forever the power of locomotion and the organ of sight, secreted a hard shell around it, and then for the rest of its life, became dependent on the sustenance brought to it by the inflowing tide. We can thus account for the stunted growth of those individuals which have unwittingly effected a lodgment near high-water mark, for in thus securing eligible house-lots, they are left helpless, and imprisoned most of the day, with the scorching rays of the sun to parch their tender bodies, in place of the cool wash of the waves. Fig. 3 *a* represents the young barnacles directly after attachment; fig. 2, another species of barnacle in a state of rest.

In the same pool we notice another strange form, partially concealed by the floating tresses of sea-weed that form so luxuriant a growth of plant-life along the coast. This animal, for it really is an animal, though apparently growing from the rock like a plant, is called the Sea-anemone, or Actinia (Plate 6, fig. 4). A crown of many tentacles, outstretched like the petals of a flower, spring from a leathery cylindrical body, which is affixed by a broad base to the rock. Very little movement is manifested by the animal till we irritate it, when the tentacles slowly unfold till they disappear within the body, leaving only a warty excrescence in place of the beautiful expanded flower (Plate 6, fig. 5).

Waiting patiently a few moments, the tentacles slowly reappear. Noticing the expanded part more attentively, a small slit is seen in the centre of the exposed disk, and surrounded by the tentacles; this is the mouth, and for a proof of it we have only to drop a bit of meat, so that it may fall within the radius of the expanded tentacles, and as it comes in contact with them, is immediately seized, not only by the tentacles against which the meat strikes, but by others that promptly swing in that direction. The tentacles are covered with minute cells, from which threads dart and adhere to their prey. These cells produce a distinct nettling sensation upon the hands of some that are brought in contact with them, and appear to paralyze the living objects upon which they feed. The tentacles appear glued to the meat, and by this power of adhesion rather than that of grasping, the food is passed from one set to the other until it is brought to the mouth, which yawns gradually, and into which it finally sinks. Another bit shares the same fate, even if it is dropped upon the extreme verge of the tentacular crown, and very amusing it is to watch their quaint manœuvres when fed in this way. A small pebble, or other substance not appropriate for food, is instantly rejected. Thus, in this interesting experiment, animality and the power to discover by touch proper substances for food are manifested. The organization of the animal is extremely simple; a cylindrical body having only one proper opening which answers the purposes of mouth and vent; this orifice leading to a sac-like stomach hanging within the body. Also within the body numerous vertical radiating partitions, corresponding to the tentacles that project from the crown, comprises the prominent parts of its structure. An English writer states that "foreigners boil many kinds of Actiniæ for the table, and find them a very pleasant dish. The texture is something like calf's-foot jelly; taste and smell resembling that of crab or lobster. Eaten with sauce, they are savory."

To those who can never conceive a reason for the creation of an animal unless it is either good to eat, offers a remedial agent, or can quickly be converted into money, we add the following receipt for cooking them, from "Devonshire Rambles," by Phillip H. Gosse: "As it was an experiment, I did not choose to commit my pet-morsels to the servants, but took the saucepan in my own hand. As I had no information as to how long they required boiling, I had to find it out for myself. Some I put into cold water (sea-water), and allowed to boil gradually. As soon as the water boiled, I tried one; it was tough and evidently undone. The next I took out after three minutes' boiling; this was better; and one at five minutes was better still, but not so good as the one which had boiled ten. I then put the remaining ones into boiling water, and let them boil ten minutes, and these were the best of all, and more tender as well as more inviting in appearance. I must confess that the first bit I essayed caused a sort of lumpy feeling in my throat, as if a sentinel guarded the way, and said, 'It shan't come here.' This sensation, however, I felt unworthy of a philosopher, for there was nothing really repugnant in the taste. As soon as I had got one that seemed well cooked, I invited Mrs. G. to share the feast; she courageously attacked the morsel, but I am compelled to confess it could not pass the vestibule; the sentinel was one too many for her. My little boy, however, voted that 'tinny was good,' and that 'he liked tinny,' and loudly demanded more, like another Oliver Twist. As for me, I proved the truth of the adage, '*Ce n'est que le premier pas qui coûte;*' for after the first defeat my sentinel was cowed. I left little in the dish." After this he fried them in egg and butter-crumbs, and "all prejudice yielded to their inviting odour and appearance, and the whole table joined the repast with evident gusto."

Space will not allow us to mention at this time the many interesting features regarding its peculiar modes of development, though we may add that the coral insect, so called, is nothing like an insect whatsoever, but is included in the same class of animals with the sea-anemone, from which it does not depart in any material point of its structure, except that the coral animal deposits lime in its growth, while the sea-anemone does not.

On the moist rocks and wet sea-weed we notice numerous little snails, some of them round, about the size of a pea, dark brown or dingy yellow in color. Dropping some of them into our dish of sea-water, we observe their movements plainly. A little soft-bodied animal, slug-like, with two feelers or tentacles thrust out ahead, having at their base a pair of little black eyes, and between the feelers a roundish trunk like an elephant's proboscis, only very short. This they apply closely to the surface upon which they rest. The mouth opens at the end of this snout. A little tongue within the mouth, furnished with numerous minute hooks, keeps up a continual lapping movement, rasping off the minute vegetation upon which they feed. Looking through the glass jar in which they may be kept, we not only notice the motions of the tongue, but the manner in which they crawl, moving first one side and then the other of the disk-like foot, which seems to be divided by a longitudinal furrow. Notice how gracefully they twirl the shell in their movements. Taking a few in our hand, they quickly withdraw within their shells, and, as they disappear, a lid, called the operculum, which is attached to the tail, closes the aperture effectually. Nearly all of the marine snails, and many of the land and fresh-water snails likewise, are furnished with this operculum.

The eye-stone, so-called, is nothing more than the operculum of some tropical snail; for the opercula of our northern snails are mostly of a horny nature, very few species having calcareous opercula.

The species we have just described is called *Littorina palliata*. Their habits are such that they require a submergence in the sea-water of only a few hours each day. For this reason one will find them oftentimes in abundance near high-water mark. When kept in an aquarium, they are continually crawling up the sides of the vessel, and out of it completely. Plate 6, figs. 6, 7, represent the shell and animal.

The common Cockle (*Purpura lapillus*), Plate 6, figs. 8, 9, is another very common species on our coast, and a very interesting collection can be made by selecting the different varieties of the shell. Some of the shells are quite solid, and either white in color, or variously banded with brown or yellow; now and then a specimen is found of a rich yellow; others are quite thin and delicate, with the outside covered with little scales, or imbrications. The animal is white, and the operculum is a rich brown or reddish.

This species is carnivorous in its propensities, and with its sharp rasp-like tongue, will drill the neatest round holes in the shells of other species, and through the hole thus made devour the contents. The empty shells of the cockle's victims, or of other carnivorous species, may always be recognized by the little countersunk hole in the shell. The mussel seems to be a favorite food of the cockle. It has been ascertained that it requires two days for the cockle to drill through the shell of the mussel, and, after the animal dies from this rude treatment, the shell gapes open, and the cockle then feeds upon the soft parts within, through the natural opening. The eggs are laid in little oblong yellow-colored capsules, which they deposit in clusters on the rocks (Plate 6, fig. 9*a*). Each little capsule contains from sixteen to thirty young, which eat their way out through the cases when fully developed. The cockle was supposed to be the species from which the celebrated Tyrian purple was obtained. At all events, there is a coloring matter extracted from the living animals, which is at first yellowish, but after exposure to the sun's rays, will gradually change, passing through various shades of green and violet, then to a purple, and finally to a crimson. It is often used for bait in fishing for cunners, or perch, and the fingers become stained a deep purple after handling the crushed animals.

In the crevices of the rocks, and in certain pools left by the tide, we shall find the common salt-water mussel (Plate 6, fig. 10) closely compacted in great numbers. On attempting to detach a specimen from the rocks, it is found that they are held in place by a strand of little silken threads, issuing between the valves of the shell, and adhering strongly to the rock. This bunch of threads is called the byssus, and a tropical genus, called Pinna, produces a byssus of considerable size. Gloves have been woven from the fibres composing it. The individuals covered by water display at the free end of the shell and between the valves (each shell of a bivalve is termed a valve, hence the name *bivalve*, two valves), which are partly open, two openings formed by the mantle. These openings are scarcely divided; one opening reaching nearly to the byssus is beautifully fringed with little arborescent fringes, the other opening is plain. If we watch the particles floating near these openings, it will be seen that a current of water is passing in at the fringed opening, while from the simple opening a current of water is as constantly issuing. These currents of water are produced by the vibration of little moving hairs, or cilia, which line the membranes within. The gills, of which the animal has four, two on each side, are particularly covered by the cilia, so that if the shell is broken open, and a piece of the gill is separated from the animal, it will swim round in the water like an independent animal for some time. We become acquainted with an excellent provision in this arrangement, for in the first place the currents of water kept up in this way bring a continual supply of fresh sea-water to the gills, and in the second place the food of the mussel, which is mostly of an infusorial character, is brought to the mouth by the same means. The two short openings we have seen in the mussel, in other genera like the clam are prolonged into two long tubes covered by one sheath, or form two distinct tubes as in certain other genera.

In contemplating the many complete provisions made for these lower animals in procuring their food, one is led to admire the adaptability of ciliary motion which appears to take so prominent a part in the functions of the lower animals. Among the lowest forms of life, locomotion is effected entirely by ciliary motion; among others, food is brought within the compass of their mouth, and the gills are continually bathed with fresh water. Generative products are brought together for the impregnation of the eggs. The new-born animal is borne safely to some place of attachment, or to a proper position for future growth.

A large and ponderous mussel, called the Horse-mussel, may be torn out from the crevices of the rock just at low-water mark, and the roots of the large sea-weed, commonly called the "devil's apron," are often found entwined around specimens of this species. While speaking of this gigantic sea-weed, we may say that after storms, and in fact at nearly all times, this Laminaria, as it is technically termed, may be found on the shores, and the collector must never fail to examine carefully every portion of it for novelties. On the broad crenulated brown frond he will find certain species of snails browsing. On the stem, patches of calcarious growth, looking like the most delicate lace, may be seen; strange as it may appear, each little cell, composing this lace-work, is occupied by a tiny animal, whose true relations are with the clams and oysters. In the tangled roots, the collector often reaps a rich harvest of marine worms, brittle starfishes, minute crustaceans, and many other animals. The reason why this sea-plant affords such an interesting field for the collector is, that it comes from beyond low-water mark. In the sea, as on the land, there are different zones of animal and plant-life. Thus on the land we find in low places certain species of plants and trees; a little higher we have the hard-wood growths; on the mountain slopes the pines and spruces flourish, while near the tops of our highest mountains lichens only can exist, and at the highest elevations the bare rocks alone meet the eye.

So in the sea, between high and low-water mark is an assemblage of animals and plants peculiar to that area, and this is called the littoral zone; from low-water mark to about fifteen fathoms another group of plants and animals are found, and as the Laminaria grows to profusion in this zone, it is called the laminarian zone. Below this we have the coralline zone, and deep sea-coral zone. Many animals range through all these zones, but there is a sufficient number of species restricted to each, which give each zone a determinate character. Thus the Laminaria is an envoy from another zone, coming laden with the animals and plants peculiar to its zone. As we are confining ourselves to those forms that are abundant between high and low-water mark, we must reluctantly leave for another time the treasures that this sea-weed possesses.

The common starfish, or five-finger jack (Plate 6, fig. 11), is one of the abundant forms under rocks at low-water mark. By throwing back the masses of sea-weed that conceal the rocks near the water's edge, they may be found of all sizes, and of every shade of brick-red, crimson, and purple. How fast they cling as we attempt to pluck them from the rocks, and by examining the underside of the fingers, or arms, we notice rows of suckers, that look like so many worms twisting and writhing in every direction! Dropping one into a dish of sea-water, we soon see the admirable use that is made of these suckers, for now they act like so many little legs. These suckers are enabled to project some little distance from the animal, and by these the animal is carried from one place to another. How gently they glide over the uneven surface of the rock, each sucker in turn reaching in advance and securing a hold, and, after contracting and thus pulling the body along, relaxing for a new start! Perhaps by diligent search you may capture a starfish at his dinner, and a strange way he has of eating it. Mussels, beach-cockles, and shell-fish, form the favorite food of the starfish.

Having selected one for his meal, our starfish arches his body over the shell, grasping it at the same time with its arms, and then, marvellous to relate, puts its stomach out of its mouth and enfolds the shell with its lobes. Whether the stomach secretes a poisonous fluid is not known, at any rate the victim dies under the effects of this warm embrace, the shell flies open, and the starfish devours its contents.

In the young starfish the eyes can be plainly seen, five in number, one at the end of each ray or arm, shining like little garnets. In the older ones it is quite difficult to distinguish them.

The starfish often loses one or more of its rays from having them bitten off by hungry fishes, or perhaps crushed off by crabs when young. Nature, however, restores them again, for new rays bud in the place of those lost, and it is not uncommon to find specimens that have lost all but one ray, with the four new rays just commencing to grow. Others may be found with three large ones, and two small ones, and a variety of forms, resulting from this renovating power after mutilation, may be gathered among the rocks.

Another curious starfish, called the brittle starfish (Plate 6, fig. 12), is found in the pools at extreme low-water mark. It takes its name from the fact that it is extremely brittle, the arms falling to pieces when roughly handled. In this species the arms appear quite independent of the disk, not merging into it as the species previously described. These arms, moreover, have greater freedom of motion. Though they have no true suckers, the arms are covered with spines, and, having great mobility, they twist and turn in every direction, and are quite active when compared to the common "five finger."

We have referred to their brittle nature, but another species, belonging to the same family, occurring on the English coast, has for its specific name "fragilissima," on account of its extreme fragility. Edward Forbes has given an amusing account of his endeavors to capture this species, and we present it here: "The first time I ever caught one of these creatures, I succeeded in getting it into the boat entire. Never having seen one before, and quite unconscious of its suicidal powers, I spread it out on a rowing-bench, the better to admire its form and colors. On attempting to remove it for preservation, to my horror and disappointment I found only an assemblage of rejected members. My conservative endeavors were all neutralized by its destructive exertions, and it is now badly represented in my cabinet by an armless disk and diskless arm. Next time I went to dredge on the same spot, and, determined not to be cheated out of a specimen in such a way a second time, I brought with me a bucket of cold fresh-water, to which article starfishes have a great antipathy. As I expected, a *Luidia* came up in the dredge, a most gorgeous specimen. As it does not generally break up before it is raised above the surface of the sea, cautiously and anxiously I sank my bucket to a level with the dredge's mouth, and proceeded in the most gentle manner to introduce *Luidia* to the purer element. Whether the cold air was too much for him, or the sight of the bucket too terrific, I know not, but, in a moment, he proceeded to dissolve his corporation, and at every mesh of the dredge his fragments were seen escaping. In despair I grasped at the largest, and brought up the extremity of an arm with its terminating eye, the spinous eyelid of which opened and closed with something exceedingly like a wink of derision."

While parting carefully the floating masses of sea-weed in search for other novelties, our attention is attracted by the unusual movements of a large shell, commonly called the whelk. As the customary movements of nearly all mollusks are slow and sluggish, we are the more surprised at these movements. We at once secure the shell, and are rather confounded to find it a bleached and sea-worn specimen, with no traces of its original inhabitant within. We drop it upon the rocks, and directly out comes a singular-looking crab, not quite out, for he retains a hold upon the shell and drags it alertly after him. We have found the Hermit-crab (Plate 6, fig. 13), called by some the Soldier-crab on account of its extreme pugnacity, and receiving the first name, because, like a hermit, it lives alone in its shelly house.

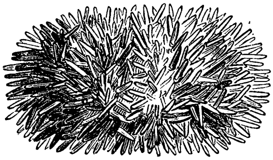
The species belonging to this genus are remarkable for the singular softness of the hinder portion of the body; this is rather long, and is coiled on itself. To protect this soft part, that would otherwise be nipped off by some hungry fish, the crab resorts to some empty shell, and, inserting his tail into the aperture, makes it his home, and carries it about with him in all his perigrinations.

The hermit-crab, like other members of the class Crustacea, increase in size through a process called "moulting." The hardened crust outside does not grow. It is only a hardened skin, as it were. Now as the body within increases in size, the outside shell must be thrown off, to allow the enlargement of the animal. This throwing off of the outside crust is called *moulting*, and takes place at certain times. With the crabs, lobsters, and others, the animal appears to fast for some time, retires to a secluded nook in the rocks, and there awaits the cracking open of its well-worn coat. This crack takes place along the back, and through this opening the animal draws itself. After it comes forth its skin is soft and tender, and some time is required before it is sufficiently hardened to enable it again to successfully battle with its enemies.

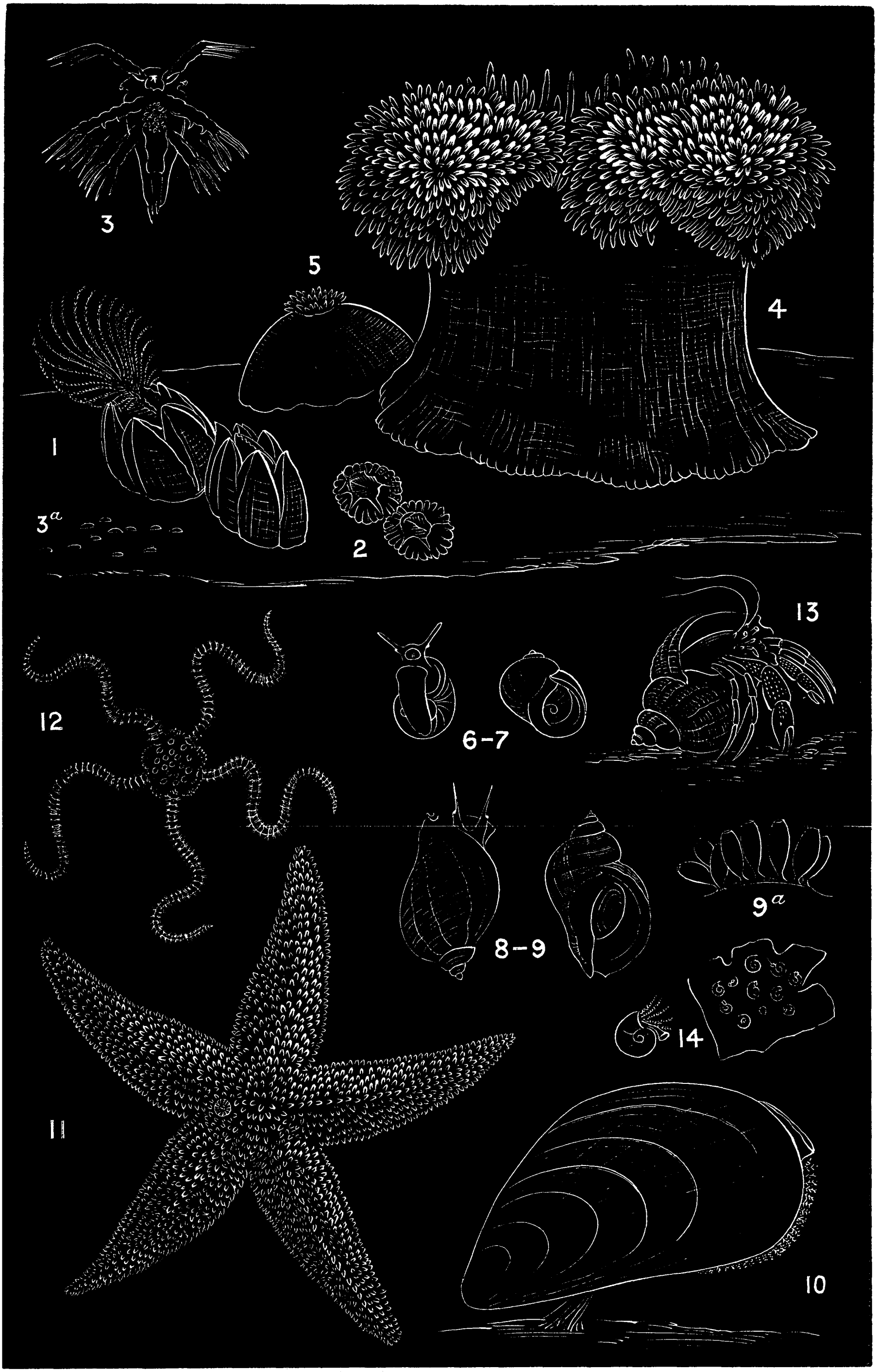
Our hermit-crab has still another stage to go through after moulting, for when this process has taken place, it finds its coiled shell too small for it, and must go on that tiresome search, called house-hunting. Back and forth it travels on the beach, surveying with critical acumen the tenantless shells on the beach. Here it meets one altogether too large, and an amusing sight it is to see it drag its soft and helpless tail from the shell, to try another one on to see if it fits. Sometimes it meets with a shell that is apparently just the thing, but unluckily it is already occupied by a brother hermit. A freebooter is our hermit, and so without any apologies it proceeds by force to eject the tenant. A fight ensues, and oftentimes ends in the ejectment and mutilation of one or the other. Perhaps the name Soldier-crab is more appropriate, from its belligerent character. Gosse has described one of these fights, from which we subjoin the following: "The Soldiers (as indeed becomes their profession) are well known to be pugnacious and impudent, yet watchful and cautious. Indeed, their manners and disposition, no less than their appearance, bear the strongest resemblance to those of spiders. Two of them can scarcely approach each other without manifestations of hostility; each warily stretches out his long feet and feels the other, just as spiders do, and strives to find an opportunity of seizing his opponent in some tender part with his own strong claws. Generally they are satisfied with the proofs afforded of mutual prowess, and each, finding the other armed at all points, retires; but not unseldom a regular passage of arms ensues; the claws are rapidly thrown about, widely gaping and threatening, and the combatants roll over and over in the tussle. Sometimes, however, the aggressive spirit is more decided and ferocious. One in the aquarium of the Zoölogical Gardens was seen to approach another, who tenanted a shell somewhat larger than his own, and, suddenly seizing his victim's front with his powerful claw, drag him like lightning from his house, into which the aggressor as swiftly inserts his own body, leaving the miserable sufferer struggling in the agonies of death."

The reader must bear in mind that we have only touched upon the more common forms to be met with on the coast, and that without the least difficulty he may find a legion of others, equally as interesting, and readily preserved alive in sea-water for a considerable time. He will do well to carry away with him a pailful of these animals, with a generous supply of sea-water in which to immerse them. The numerous sea-worms, of which we have not spoken, will repay him a careful hunt. A common worm on the coast he will find in the guise of a coiled white shell, firmly cemented to a bit of sea-weed or other substance. Sometimes a frond of sea-weed will be whitened with them. They are quite small, and to examine them properly will require the assistance of a lens. The head is surrounded by numerous little appendages, which answer the purpose of gills. One of the appendages is thickened and rounded at the end, and serves as a plug to the aperture of the shell, when the animal retires.

Fig. 14, plate 6, represents an enlarged figure of this worm, with the animal protruding, and the adjoining figure shows a bit of sea-weed, with several of the worms drawn to the natural size.



The adjoining cut represents the appearance of an animal quite abundant at low tide, commonly called the *Sea-urchin*. It is covered with a great many long sharp spines, and in addition to these spines, there are five zones of suckers passing from the mouth, which is below, to the opposite pole of the body. These suckers perform locomotive functions, as do the suckers of the starfish described above, and the collector will be repaid in watching the movements of the animal alive. The sea-urchin, when dead and bleached upon the beach, forms a very curious object. A flattened spherical shell, composed of a large number of small plates, all neatly fitting together; five zones of these plates perforated for the passage of the suckers, and all the plates ornamented with minute rounded protuberances upon which the spines were attached, make up the empty shell of the sea-urchin. We may briefly add, that the collector will find in the piles of dried sea-weed rolled up by the waves, many curious objects all prepared and dried by the sea and the sun. If on the long beaches, he will find many interesting shells, dried



MORSE ON THE COMMON ANIMALS OF THE SEA-SHORE.

crabs, empty shells of sea-urchins, and oftentimes many objects that are really worth preserving for cabinet specimens.

EXPLANATION OF PLATE 6.

Fig. 1. Common Barnacles, *Balanus eburneus* of Gould.
Fig. 2. “ “ “ *ovularis* “
Fig. 3. Free swimming young of Barnacle.
Fig. 3*a*. Young Barnacle directly after attachment.
Fig. 4. Sea-anemone expanded, *Metridium marginatum.*
Fig. 5. “ contracted,
Figs. 6, 7. Periwinkle, *Littorina palliata.*
Figs. 8, 9. Cockle, *Purpura lapillus.*
Fig. 9*a*. Egg-cases of the same.
Fig. 10. Mussel, *Mytilus edulis.*
Fig. 11. Starfish, *Asterias vulgaris.*
Fig. 12. Brittle Starfish, *Ophiopholis bellis.*
Fig. 13. Hermit-crab, *Bernhardus longicarpus.*
Fig. 14. *Spirorbis nautiloides.*

OUR SEA-ANEMONES.

BY A. E. VERRILL.

To all frequenters of the sea-shore during the summer months who take pleasure in seeking and studying the many wonderful and beautiful inhabitants of the ocean, the modest and retiring Sea-anemones cannot fail to offer many attractions; and there are few marine creatures that can so easily be reconciled to the narrow limits of an aquarium, and so readily become permanently established in their new home. Thus they afford us every opportunity to study their habits and structure, and to watch their ever-varying forms and beautiful colors. But to see them in their perfection one must visit them in their native haunts in some cool, rocky pool, overhung with projecting ledges and drooping sea-weeds, or in some deep grotto among the shattered cliffs, half-illumined by the sunbeams which struggle for entrance